

25 June 1973

Dear Mr. Wickenberg,

Many thanks for your letter of June 19th.

I did read with great interest the New York Times article on the lack of fertility of jungle soil. This idea has been expressed before. I have, however, seen myself a very large cultivation of pepper in Southern Para State developed by the Japanese which seemed quite successful. I do believe that Brazil's development will largely take place in the non-Amazonian areas. They are concerned with the lack of population in the Amazon areas and I believe their efforts are really directed at "Brazilianizing" the area.

Again, many thanks.

Faithfully,

Vernon A. Walters  
Lieutenant General, USA

Mr. Charles Wickenberg  
Associate Editor  
The State  
P.O. Box 1333  
Columbia, S.C. 29202

# The State

*South Carolina's Largest Newspaper*

P. O. BOX 1333

COLUMBIA, S. C. 29202

June 19, 1973

Lt. Gen. Vernon A. Walters  
Deputy Director  
Central Intelligence Agency  
Washington, D. C. 20505

Dear General Walters:

I was a participant in the recent National Strategy Seminar at the U. S. Army War College, and I particularly enjoyed your informal commentary. Your personal assessment of Brazil was especially interesting. In the event it may not have come to your attention, I am enclosing a recent article from The New York Times.

Sincerely,



Charles Wickenberg  
Associate Editor

CW/jd

Enclosure

60

## JUNGLE SOIL SAID TO LACK FERTILITY

Study Finds This Precludes  
Large Populations

By JOHN NOBLE WILFORD

In the world's great tropical jungles, appearances can be deceptive. The vast and luxuriant vegetation is "a facade, an outward magnificence cloaking the poverty beneath."

The soil is surprisingly deficient in nutrients. Soil fertility deteriorates so rapidly after the ground is cleared of vegetation and cultivated that a site usually has to be abandoned after the third harvest. The jungle lands could never be opened up to support large populations.

These are the conclusions of a comprehensive study of the two largest wilderness areas, the Amazon and Congo rain forests, by 28 scientists and anthropologists. Their results have been published by the Smithsonian Institution Press in a book entitled, "Tropical Forest Ecosystems in Africa and South America: A Comparative Review."

### Highway Being Built

Dr. Betty J. Meggers, an anthropologist who is one of the editors of the study, cautions against thinking that the luxuriant vegetation of the Amazon implies excellent conditions for intensive agriculture. Instead, Dr. Meggers says, the greatest part of the Amazon Basin is an "inhospitable area" in which lush vegetation disguises a "nutriently deficient ecosystem."

And yet Brazil, as part of an extensive development program, is building a highway into the Amazon and thus creating pressures to clear much of the jungle for farming and new cities.

In an introduction to the book, Dr. J. P. M. Brenan of the Royal Botanic Gardens in England states that Dr. Meggers's paper "kills, one hopes once and for all, the idea that this area has immense potential natural wealth, awaiting only the approach of Western civilization for fruitful exploitation."

One of the important differences between the jungle ecosystems and those of temperate regions is that nutrients in the tropics are stored primarily in the vegetation instead of in the soil. The plants themselves hold 70 per cent of the total mineral nutrient supply of the system.

### Heavy Rains Cited

Only along the flood plain of the Amazon Basin's rivers and lakes is there much rich soil, the result of regular silt deposits.

Dr. Harald Sioli of the Max Planck Institute for Limnology in West Germany suggests that farming in the Amazon be restricted to such flood plains and that the more extensive upland areas be left as forests. He said that 98 per cent of the Amazon Basin falls in the upland category, where the soil is particularly poor.

Dr. F. R. Fosberg, a botanist with the Smithsonian Institution, explains that the heavy rains, which leach nutrients from surface layers of the soil, account in large measure for the poor fertility. They also contribute to the rapid erosion that follows the clearing of land.

Once this happens, Dr. Fosberg says, the forests seldom return. They are most likely to be replaced by savanna.

### Cultural Practices

The studies showed that the Amazonian Indians were probably more vulnerable to change than the Bantu of the Congo. The scientists reported that the Bantu have become "quite well adapted to a changing environment" and are more resistant to alien disease. The Amazonian Indians, on the other hand, have been more isolated and thus more vulnerable to environmental alterations.

As often happens, the scientists concluded, cultural practices along the Amazon evolved in response to environmental conditions.

Out of their struggle to exist on nutrient-poor plants and scarce wild animals, Amazon dwellers developed regulatory mechanisms to keep their population low.

According to Dr. Meggers, such "barbaric" practices as infanticide, headhunting and various sexual taboos were adaptive responses to the environmental situation in the Amazon.

Modern population controls, Dr. Meggers says, will be necessary to protect the fragile ecosystem of the Amazon.